M:Lebanon G,S-S (no date) Ref.
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311 167 soil began to show signs of depletion. It could no longer give the same produce as when it was virgin soil; and the old methods of agriculture were not capable of rehabilitating the soil to the desired extent. This further disturbed the land-population balance and made the problem seem more acute. Emigration seemed to be the only solution.

165 166 The following table (I) of births and deaths for a period of 40 years is a fair indication of the rate at

TABLE I. NUMBER OF BIRTHS AND DEATHS IN THE VILLAGE OF BISHMEZZEEN, NORTH LEBANON, 1870-1909

Period	Births	Deaths	Excess of births over deaths
1870-1874	108	27	81
1875-1879	94	40	54
1880-1884	72	34	38
1885-1889	95	44	51
1890-1894	118	32	86
1895-1899	123	34	89
1900-1904	184	40	144
1905-1909	178	45	133
TOTAL	972	296	676

which the village population was growing. The period covered is 1870-1909. The increase due to immigration may be neglected since only a few families came to settle in the village after 1870. It must be admitted that the writer cannot affirm the perfect accuracy of the table. It was calculated from the village church records and verified, as far as their memories permitted, by some of the village elders. The table shows a very high increase of births over deaths for that period—about 3.3 times.[1]

R 64(A)

[1] This means an average natural increase of about 12 per 1000 population for the period 1870-1909. Compare this rate with the following rates (1908-12): Austria,

D:Tannous G,8-6 (no date) 1942
ME1 Lebanon ME1

The writer believes that such a high rate of increase is a true representation of the situation. The facts that tend to support this belief are: the strong desire for children, the large number of children per family, and the healthy condition of the people. This was further verified by mapping the village structure over a period of years. Each map showed the number of households in the village for a particular period. Estimating an average of 6 persons per household (based upon census records for 1930-39 and upon family trees and records for

TABLE II. GROWTH OF POPULATION IN BAKHOUSHIEH, NORTH LEBANON, FOR PERIODS OF 80 YEARS; 1750-1939

Year	Households	Population
1750	18	108
1800	36	216
1850	121	726
1870		1000
1890		1332
1900	234	1404
1939	203	1218

previous periods) the map may be condensed into the following table (III):

It will be observed that the village population has increased steadily and rapidly until the period 1890-1900, when the peak was reached—between 1,200 and 1,400 people. For the past fifty years, the population has remained stagnant or has shown a slight decrease. The village resources could support that number and no more. The surplus was taken care of by emigration.

P.64 (B)

10.7; Belgium, 7.8; France, 6.9; Ireland, 6.3; Russia, 18.7; England, 11.9; See Thompson, Warren S., *Population Problems*, McGraw-Hill Book Company, N. Y., 1930, pp. 214-217.

Schools are maintained by the Lebanese government under the authority of the Ministry of National Education and by private, denominational and foreign agencies. There are no public secondary schools, and institutions for advanced education are conducted almost exclusively by private or foreign organizations.

There are two universities in Beirut, both of which have made substantial contributions to educational and social leadership throughout the Near and Middle East. The Université Saint-Joseph, which was founded in 1875, is operated by Jesuit orders, and some of its departments are subsidized by the French government. It has faculties of law, theology, engineering, philosophy, oriental letters and medicine, with constituent schools of dentistry, pharmacy, nursing and midwifery. The American University of Beirut was established as the Syrian Protestant College in 1866, and renamed in 1920. It is a nonsectarian, nonpolitical institution, sponsored by the Near East Colleges Association. The present university incorporates schools of arts and sciences, engineering, medicine, pharmacy and nursing, as well as a new school for agriculture, organized in 1952.

Vital Statistics

No reliable vital statistics are available for Lebanon. The registration of births and deaths is compulsory by law, but reporting is irregular, and the facilities for the compilation and the analysis of statistical data are inadequate. The published statistics are incomplete and of little value in the interpretation of true birth and death rates. No census has been taken since 1932, but, on the basis of the official population estimates, the birth rate was calculated at 21.3 per 1,000 population in 1947 and at 26.1 in 1948. The death rates were given at 5.5 and 6.1 per 1,000 population, respectively, figures which are obviously low.

The infant mortality rates are unknown. The general laxness in reporting births in many rural villages and the tendency to

165 evade punishment by concealing the death
369 of unregistered infants detract from the
165 validity of the meager data available. Local pediatricians believe that the mortality rate in children up to 2 years of age averages from 25 to 30 per cent for the country as a whole. It ranges from 10 to 15 per cent, or more, in Beirut proper to from 30 to 45 per cent in Tripoli, Sidon and the towns of
165 the interior. In the more remote villages of
871 South Lebanon, the standards of living are uniformly low, and the mortality in children under 2 years of age probably reaches 50 to 70 per cent. Intestinal diseases are foremost among the causes of death in infancy and early childhood.

Social Economy

241 The economy of Lebanon is based upon
914 agriculture, but the country is in a more
167 favorable position than the neighboring Arab states, in that the national income is augmented by an increasing tourist traffic and by remittances to their families from
241 emigrants living abroad. Although the
511 coastal plain and the Bekaa valley support a variety of crops, a large part of the territory is mountainous and unsuitable for cultivation. The coastal region is cultivated intensively, with a series of narrow terraces extending along the seaward slopes of the Lebanon range up to an elevation of about 3,000 feet. Little more than 20 per cent of the total land area is now under production, while less than one fifth of that is irrigated. Considerable disparity exists between recent estimates of the amount of arable land, but all agree that it can be increased materially by a greater utilization of the available water resources and by improved
653 methods of cultivation. Programs have already been initiated for the further development of irrigation facilities, notably in the southern Bekaa, and in the 'Akkar
412 plain, a triangular sector between the coast and the northern frontier with Syria. The tradition of private ownership is strong in the mountainous districts of the north, and most of the land is cultivated by independent farmers.

ibia, *V. lebetina castanea* and *V. palaestina*, are encountered in some localities.

Rodents. The brown rat, *Rattus norvegicus*, is prevalent throughout the coastal area. *R. rattus alexandrinus* is present in small numbers in Beirut and the coast towns, but predominates in the inland villages. *R. rattus rattus* is also present. Mice are abundant under both urban and rural conditions.

Molluscs.* The fresh-water snail, *Bulinus truncatus* (— *B. contortus*), is found in a few localized areas—in the vicinity of Sidon, in the Nahr el Sanour and the irrigation ditches connected with the springs of Ras el 'Ain, near Tyre, and in the Litany River, around the Qaraoun bridge in the Bekaa. It is the intermediate host of *Schistosoma haematobium*, and, although the infection apparently is not endemic in the indigenous population, it has recently been observed among Palestinian refugees in the Tyre region.

Plants. Little scientific information is available, but many of the trees, the grasses and the weeds which are known to produce allergic manifestations in susceptible individuals in other countries flourish in Lebanon.

The stocks of wheat sometimes contain seeds of *Cephalaria syriaca* or *Lolium temulentum*. Occasional cases of poisoning are traceable to the consumption of breads or *burghul* prepared from wheat flours thus contaminated.

The broad bean, *Vicia faba*, is widely used as a food, but it may cause toxic symptoms when eaten raw. Serious cases are relatively rare, but fatalities are reported almost annually among young children. In some cases, the chick-pea, *Lathyrus sativus*, a common fodder crop, is responsible for poisoning when it is used as a food.

Food Sanitation

The sanitary inspection of restaurants and premises where food is prepared or sold is the responsibility of the municipal health

*See footnote, page 10.

diseases in Lebanon. A section for the compilation and the study of morbidity and mortality statistics was established in the Ministry of Public Health in 1951, but the data collected over previous decades are admittedly incomplete. With relatively few exceptions, the notification of communicable diseases was not compulsory. Resistance to quarantine regulations and fear of the social stigma often attached to certain diseases are among the factors contributing to a general laxity in the reporting of cases treated outside government hospitals and clinics. Although facilities are being expanded continuously, many cases of illness in the rural areas still receive little or no medical attention. Moreover, due to the inadequacy of laboratory services, the differential diagnosis is lacking in many conditions. For the most part, the mortality statistics are reliable in the towns, but in the more remote villages the causes of death may be certified by nonmedical officials. The deficiencies in reporting and the inaccuracies in diagnosis thus detract from the validity of the disease statistics available.

Diseases Spread or Contracted Chiefly Through Intestinal or Urinary Tract

Typhoid and Paratyphoid Fevers. Enteric fevers are among the most important endemic diseases in the country. Typhoid fever is prevalent, with from 718 to 1,824 cases reported annually in the 8 years 1943-49. Water-borne outbreaks, caused by the pollution of spring and well supplies, are frequent, especially in the smaller towns and villages. The individual outbreaks vary in severity, but, in general, the fatality rates range from 5 to 11 per cent. One of the largest epidemics in recent years occurred in Zahle in 1946: over 1,000 cases were recorded. Typhoid fever persists throughout the year, usually with peaks of prevalence between May and October, and again in December and January. Water-borne outbreaks often coincide with the onset of the heavy rains in the early winter. The

American University in Beirut. About 6 per cent gave a positive reaction with *Br. abortus* and *Br. melitensis*. Sporadic cases of infection with *Br. suis*, as well as with *Br. abortus* and *Br. melitensis*, are diagnosed in the course of routine serologic examinations in the Institute de Bactériologie of the Faculté Française de Médecine.

Other Infections. Food poisoning caused by the consumption of cheese and other foods contaminated with toxic strains of *Staphylococcus* is common.

Diseases Spread Chiefly Through the Respiratory Tract

Tuberculosis. Tuberculosis is prevalent, but the extent of infection is not accurately known. In the 6 years 1943-48, the reported deaths from tuberculosis averaged 254 a year, or roughly 21 per 100,000 population. The validity of such mortality statistics is questionable, however, due to the deficiencies in reporting and the tendency to conceal the presence of infection.

Several tuberculin test surveys have been made on small selected groups of the population, but with considerable variation in results. In 1949, the first representative survey was undertaken in Beirut and the surrounding suburbs by the Ministry of Public Health, in co-operation with the United Nations International Children's Emergency Fund and associated organizations. From October, 1949, to the middle of March, 1950, tuberculin tests were performed on a voluntary basis on about 45,000 individuals of all ages, 29,500 of whom were subsequently inoculated with BCG vaccine. The proportion of persons giving a positive reaction to tuberculin was estimated at 14 to 22 per cent. Among the schoolchildren, who comprised the largest group, the reaction rate averaged 5 per cent at 6 years of age and 17 per cent at 18 years of age. A comparable series, made up of the persons attending a testing center in one of the poorer districts of Beirut, showed 7 per cent positive reactions among children 6 years of age and 26 per cent at 18 years of age.

757 Higher rates were found in other groups.
659 Among the nurses in the 2 university hospitals, the rates were 35 per cent at 20 years of age and 50 per cent at 25 years of age. Tests among textile workers showed a progressive increase in the reaction rate, from 32 per cent at 13 years of age to 60 per cent at 27 years of age. In the military personnel tested, the reaction rate reached 72 per cent at 35 years of age.[1] Since the departure of [640] the international teams in 1950, the tuberculin testing and BCG inoculation program has been carried on in conjunction with the special tuberculosis dispensaries.

164 The facilities for the diagnosis and the
758 treatment of tuberculosis have been aug-
943 mented within the last few years, but they are still inadequate. Taking advantage of the unusually favorable climatic conditions, several tuberculosis sanatoria have been established in Lebanon, which attract patients from all the surrounding Arab countries. In 1948, 4 sanatoria, with an aggregate capacity of 1,067 beds, were maintained by religious or philanthropic organizations. About 270 beds were subsidized by the Ministry of Public Health—40 at Azzounieh and the remainder in the larger sanatorium operated by a French mission at Bhannés. The entire quota of tuberculosis beds is not available for Lebanese patients, since private cases of other nationalities are accepted at all institutions. Due to the deficiency in diagnostic facilities, the majority of cases now referred to the sanatoria are
744 in advanced stages of the disease. Since
164 1949, the Ministry has opened special tu-
943 berculosis dispensaries, with X-ray facilities, in Beirut and Zahle and, more recently, in Tripoli and Sidon. The Anti-Tuberculosis Campaign Society and the Lebanese Red Cross also carry on programs for the prevention of tuberculosis and support diagnostic and treatment services.

164 Smallpox. Smallpox is endemic, and spo-
751 radic cases are reported almost annually. Vaccination against smallpox is compulsory, but enforcement is often incomplete
164 in the rural frontier districts. A major epi-
165

164 demic occurred in 1942 which, according to
165 the official statistics, involved 482 cases, with a fatality rate of 21 per cent. The incidence and the severity of the disease declined the following year—63 cases were reported in 1943, with a fatality of 16 per cent. Subsequently, the prevalence was sporadic until 1948, when localized outbreaks were again observed. From 142 to 175 cases a year were reported in 1948-49, but in 1950 the incidence dropped to the normal low level. Two cases were recorded in 1950, none in 1951.

164 167 Diphtheria. Diphtheria has increased in prevalence within the last few years. The reported incidence averaged 20 cases a year in the period 1942-47, but since 1948 it has approximated 130 to 200 cases. Many local authorities attribute the sudden rise in the number of recognized cases in part to the recent influx of refugees and tourists from
164 other countries. The presence of a high rate
751 of subclinical infection, with a correspondingly high degree of immunity in the indigenous population, is suggested by the large number of children who give a negative reaction to the Shick test at an early age. In a series of tests performed in 1949[22] on 1,077 children, 4 to 16 years of age, attending schools in Beirut and the immediate vicinity, 91 per cent responded with a negative reaction. Starting at 5 years of age, the proportion of positive reactors averaged 9 per cent up to 10 years of age and 7 per cent from 10 through 14 years of age. Nineteen children from 15 to 16 years of age were included in the series; all gave negative reactions. In 1950, a program was started for the immunization against diphtheria of all children under 10 years of age.

164 Meningitis. Small localized outbreaks of meningococcus meningitis are reported almost every year. The recorded cases are normally few in number, but waves of increased prevalence are noted at irregular intervals. In the 12 years 1939-50, the incidence ranged from 12 to 52 cases a year, except in the 2 years 1944 and 1945, when it reached 205 and 101 cases, respectively.

63:Simmons et al G-8 (1941-1951) 1954
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752 758 743 164 Other Infections. Canine rabies is common, and human cases are observed from time to time. In each of the 4 years 1947-50, from 469 to 621 persons from Lebanon and Syria received prophylactic treatment for the prevention of rabies at the Institut Antirabique of the Faculté Française de Médecine at Beirut. Either the Semple or the Fermi type of vaccine was employed. From 2 to 6 deaths were recorded each year, usually among individuals who had been bitten by wild animals or who had delayed treatment. About 75 per cent of the persons registered within this period were bitten by dogs and 20 per cent by rats; the remainder by cats, wolves, hyenas and other animals.

[165]

164 232 Anthrax is enzootic among the sheep, and human infections occur occasionally. Sporadic cases of rat-bite fever are recorded.

Leptospirosis is not reported, but the infection is known to be enzootic among the local rats. Using a combination of staining, darkfield illumination and culture technics, *Leptospira icterohaemorrhagiae* was demonstrated in 8 out of 65 specimens of *Rattus norvegicus* trapped in Beirut in 1945.[22] Five rats of the species *R. rattus alexandrinus* were studied at the same time, but none was found to be infected.

Diseases Spread by Arthropods

164 744 Malaria. Malaria has long been a disease of major health and economic importance in Lebanon. As a result of anopheline control programs, it has recently dropped from first to second place among the disease problems of the country. Nevertheless, at least one fifth of the inhabitants live in endemic or hyperendemic regions, and are potentially exposed to infection each year. The trend over the last decade has been downward; the official statistics suggest that the peak of prevalence occurred in 1942-44, coincident with the military operations in the area and the influx of persons from other countries. The recorded cases, which represent a small fraction of the total, diminished from over 21,000 in 1943